

Or—

	Cyanic.	Xanthic.	White.
Central America .....	12	30	8
Sandwich Islands.....	12	31	7
Alashka .....	26	13	11
California.....	25	19	6
New Guinea.....	12	23	15
Hong Kong.....	13	27	10

In a practical view these colours may be regarded under the three heads of cyanic, xanthic, and white or blanched. The last will be found to bear an unusual proportion in New Guinea, even among its autumn flora, and at a season when the xanthic series is predominant; and this is also important at Hong Kong, but there the month of the year must be taken into consideration. In the high latitude of Alashka, as might be expected, the blanched flowers are numerous, and the cyanic series prevails, though in the midst of summer. In California the superiority of the cyanic series over the xanthic is worthy of remark, considering the time of the year, the brilliancy of the atmosphere, its general dryness, and the exposed character of the vegetation; and still more, as some limited observations made two degrees to the south give an excess to the xanthic series. In Central America January is a month of the dry season and the xanthic colours prevail; and the same occurs at the Sandwich islands, notwithstanding the general tameness of the flowers of their flora.

XII.—*On the Preservation of Objects of Natural History for the Microscope.* By the Rev. M. J. BERKELEY.

*To Richard Taylor, Esq.*

MY DEAR SIR,

King's Cliffe, Dec. 28, 1844.

I HAD an opportunity a few days since of inspecting Mr. Thwaites' collection of Algæ at Bristol, and as his mode of preparing the specimens is not perhaps generally known, and as regards utility, is far superior to any other I have seen, I think it may not be disagreeable to some of your readers to have a short notice of it in your Journal. The distinguishing peculiarity of the collection is, that the specimens are ready mounted for the microscope, and preserved in a liquid which retains all their characters perfectly, so that at a moment's notice any species is ready for inspection in as great perfection as when it was first gathered; and if any unusual structure occur, the portion of the plant may be set up and re-examined at pleasure, a point which was impossible in many cases before. The value of this method will at once be appreciated by all practical algologists, who know that scarcely any

tribe of plants suffers so much by drying as Algæ, especially the freshwater Algæ. The complicated endochrome, for instance, of *Zygnema* and allied genera is entirely destroyed by drying; whereas by Mr. Thwaites' method every peculiarity of structure is admirably preserved, even to the cytoblasts which occur in some species.

The method is simple and requires only a little delicacy of manipulation, which indeed may be said of all microscopical preparations. Slips of plate glass of a size convenient for the microscope are the best recipient for the specimens. On the centre of these a little square area is insulated with gold size, which must be laid on of greater or less thickness, so as to build up a little wall according to the thickness of the specimen to be mounted. A number of these should be prepared ready for use. A solution is then to be made consisting of

1 part alcohol,  
14 parts water,

and to be accurately saturated with creasote. This should then be filtered through prepared chalk, and the solution allowed to stand for a month in case any precipitate should form; it must then be decanted for use and kept in a stoppered bottle, and the small portion wanted from time to time should be passed through a piece of linen to prevent any impurity from spoiling the clearness of the preparation.

When then it is requisite to mount a specimen, a drop or two of the fluid is placed in the insulated area, the edge having been first lightly retouched with gold size and the specimen floated in the fluid, care being taken to remove all air-globules; a slip of talc, or, what is better, microscopic glass, a little exceeding the size of the area, is then dropped upon it and pressed gently upon the size, by which means the specimen is hermetically sealed; a coat or two of gold size is then put round the edges for greater security, and when the whole is perfectly dry, a coat of sealing-wax varnish. Care of course must be taken that the glass, especially that which covers the specimen, is perfectly clean. The slips are all made precisely of the same size, and are placed vertically in little drawers, on the sides of which grooves are made for their reception. A box of the size of a common writing-desk will hold about 250 specimens.

Mr. Thwaites finds this solution answer best for freshwater Algæ; for marine Algæ he uses generally Goadby's solution, the formula for which is given in the 'Microscopical Journal' for 1842, p. 183. It consists of

4 ounces of bay salt,  
2 ounces of alum,  
4 grains of corrosive sublimate,  
2 quarts of boiling water.

This does not answer however for freshwater Algæ. Some of the specimens of marine Algæ, mounted in Goadby's solution, such as *Codium tomentosum*, *Helminthocladia vermicularis*, &c., are admirable.

This method of preparing Algæ certainly requires some little expenditure of care and patience, but it will be found so satisfactory in its results as amply to compensate any additional pains; and when once the requisite arrangements have been made, the trouble in the case of individual specimens from time to time will not be found so great as might be expected.

It may be remarked that the method is equally applicable to other microscopical objects, and especially to those of vegetable physiology.

I am, my dear Sir, faithfully yours,  
M. J. BERKELEY.

XIII.—*A Century of new Genera and Species of Orchidaceous Plants.* Characterized by Professor LINDLEY.

[Continued from vol. xii. p. 398.]

Decade 3.

21. *PLEUROTHALLIS Hartwegii*; caule medio laxè et longè vaginato, folio oblongo sessili amplexicauli, spatha obtusa carinata coriacea, spicis plurimis erectis rigidis secundifloris folio subæqualibus, sepalis disjunctis falcatis intus pubescentibus, labello cordato ovato obtuso basi auriculato (v. trilobo lobis lateralibus brevibus rotundatis) juxta sinus bilamellato.

*Popayan* (Hartweg).

Very like *P. macrophylla*. Stem a foot and more high. Leaf a span long. Spikes eighteen to twenty.

22. *PLEUROTHALLIS lævigata*; caule angulato medio laxè et longè vaginato, folio oblongo sessili amplexicauli vernice quasi inducto, spatha acuta carinata coriacea lævigata, spicis plurimis erectis rigidis secundifloris folio brevioribus, floribus omnino *P. Hartwegii* sed duplo majoribus.

*Popayan* (Hartweg).

Very like *P. Hartwegii*, but the leaves are more polished, the spikes often shorter, and especially the flowers are twice as large. Perhaps it is a mere variety.

23. *STELIS maxima*; folio oblongo obtuso, spica recta basi spathacea triplo longiore, bracteis amplexicaulibus cuspidatis internodiis brevioribus, floribus ventricosis disepalis, sepalis multistriatis concavis, . . . . .

At the foot of Mount *Tunguragua*, at the height of 11,000 feet (Hartweg).